REMARKS

Claims 12, 14 and 17-20 currently remain in the application. Claims 1-11, 13, 15 and 16 have been withdrawn or canceled. Claim 12 is herein amended.

This is a divisional application. A copy of the parent application as filed is submitted herewith and the aforementioned claims refer to those in the parent application. Regarding the matter of inventorship, the Examiner is hereby informed that this divisional application does not affect the inventorship, that is, the joint inventors named in the parent application were not only each under the obligation to assign every right regarding the base invention hereof to the assignee throughout the period of time relevant to this application but also each an inventor in the instant divisional application.

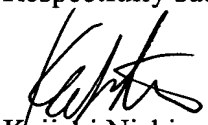
In said parent application, claims 8-20 were rejected in an office action dated April 23, 2003 under 35 U.S.C. 103 over Dunne in view of Imai. In part in view of these references, as well as Japanese Patent Publication Tokkai 61-15421 a copy of which is being submitted herewith as a part of an Information Disclosure Statement, independent claim 12 has been herein amended by incorporating the limitation in claim 16. The Examiner also rejected claim 16 under 35 U.S.C. 103 over Dunne in view of Imai, but applicant cannot agree with the Examiner that "the comparison of the received pattern to two or more standard bit patterns is known" because applicant is not aware of any prior art publication disclosing a photoelectric sensor adapted to carry out comparisons of a received pattern simultaneously with two or more standard bit patterns. Although the Examiner says that it is a mere matter of obvious design choice, the present invention is a result of an effort to reduce the response time of a photoelectric sensor and although these was a similar attempt in the technological field of telecommunication, it is not obvious to combine any teaching in the different technical field of communication with the desire to reduce the response time of a photoelectric sensor. In other words, applicant believes that without the benefit of hindsight it was not obvious to combine the teachings of the references.

Moreover, the Examiner's statement "to improve the ability of the device in the detection of noise" is believed to be vague. A device has many abilities. Each of the abilities

can be improved in different aspects. A mere reference to improvement of a device's ability is not believed to support the Examiner's conclusion that claims 12 and 16 would have been obvious. Without any designation of what specific mode of improvement on what ability of the device in question is being discussed, applicant cannot appropriately respond to the Examiner's reason for rejection.

In summary, without any citation of a prior art publication disclosing or hinting at a photoelectric sensor as specifically limited by the language of amended claim 12 and without any clearer indication of what improvement and what ability are being referred to, the Examiner is believed to be failing to support the rejection in view of the requirement stated in 37 C.F.R. 1.104(b), and application is of the opinion that the instant divisional application is in condition for allowance at least in spite of the references cited in said Office Action.

Respectfully submitted,



Kiiichi Nishimura
Registration No. 29,093

July 11, 2003
BEYER WEAVER & THOMAS, LLP
P.O. Box 778
Berkeley, CA 94704-0778
Telephone: (510) 843-6200
Telefax: (510) 843-6203

AMENDMENTS TO THE SPECIFICATION:

The title of record has been amended as follows"

PHOTOELECTRIC SENSOR USING RADIATION PULSES

Paragraph starting at line 9 of page 1 has been amended as follows:

This invention relates to photoelectric sensors using radiation pulses ~~such as photoelectric sensors, ultrasonic sensors, microwave sensors and an impulse radar~~. In particular, this invention relates to such a photoelectric sensor incorporating means for effectively preventing misjudgments even where a noise pulse appears periodically and where the timing of the appearance of the noise is close to that of the timing of the sampling.

Paragraph starting at line 2 of page 3 has been amended as follows:

It is therefore an object of this invention to provide a photoelectric sensor using radiation pulse
which can function correctly even in the environment where noise pulse appears periodically and the timing of its appearance coincides with the sampling timing of the sensor.

Paragraph starting at line 3 of page 4 has been amended as follows:

A sensor according to another embodiment of the invention may be characterized also as comprising an emitting device for emitting radiation pulses repeatedly and a receiving device for receiving these radiation pulses, but its emitting device includes pulse transmitting means for transmitting the radiation pulses according to a specified bit pattern and its

receiving device includes not only pulse judging means as explained above but also bit pattern judging means for making a comparison between the bit pattern of electrical pulses judged by the pulse judging means to be a true electrical pulse and a standard bit pattern and judging according to the result of this comparison whether radiation pulse was normally received. In the above, the "standard bit pattern" used by the bit pattern judging means for the comparison need not be the same as the "specified bit pattern" used by the emitting device, as long as they are correlated. With a sensor thus ~~structure~~ structured, distinction between true and false electrical pulses can be made even more accurately because the matching is made also in terms of their bit patterns.

Paragraph starting at line 29 of page 6 has been amended as follows:

Fig. 9 is a block diagram of a sensor according to a fifth ~~amendment~~ embodiment of this invention.

Paragraph starting at line 21 of page 14 has been amended as follows:

The output from the first comparator 2211 is "H" or "L", depending on if the output level of the high pass filter 215 is higher or lower than Vth1. The output from the second comparator 2221 is "L" or "H", depending on if the output level of the high pass filter 215 is higher or lower than Vth2. In Fig. 8B, $\tau 2$ indicates the delay time set for the first delay circuit 2231. This delay time $\tau 2$ may be obtained as the difference between reference times T3 and T5 at which the two peaks P3 and P5 of the true waveform Ws2 appear. In other words, the result of comparison by the first comparator 2211 at reference time T5 and that at reference time T3 are simultaneously inputted to the AND circuit 2241. Similarly, $\tau 3$ in Fig. 8B indicates the delay time set for the second delay circuit 2231, which may be obtained as the difference between reference times T4 and T5 at which the two peaks P4 and ~~p5~~ P5 of the true waveform Ws2 appear. Thus, not only the aforementioned results of comparisons by the